UNIT 6 BENCHMARK

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| **UNIT ASSESSMENT ALIGNMENT GUIDE** | | | | | |
| **Learning Goal #** | **Learning Goal** | **Aligned Item #’s** | **Points Correct** | **Points Possible** | **Grade**  (%) |
| **SPI 1.3** | **Apply properties to evaluate expressions, simplify expressions, and justify solutions to problems.** | **4, 22** |  | **2** |  |
| **CFU 1.9** | **Identify and use properties of the real numbers (including commutative, associative, distributive, identity )** | **8, 20, 21** |  | **3** |  |
| **SPI 2.3** | **Describe and/or order a given set of real numbers including both rational and irrational numbers.** | **1, 2, 13** |  | **3** |  |
| **CFU 3.3** | **Justify correct results of algebraic procedures using extension of properties of real numbers to algebraic expressions** | **3, 10** |  | **2** |  |
| **SPI 1.2** | **Write an equation symbolically to express a contextual problem.** | **9, 35, 37** |  | **3** |  |
| **SPI 3.5** | **Write and/or solve linear equations, including those containing absolute value.** | **7, 12, 25** |  | **3** |  |
| **SPI 4.1** | **Develop and apply strategies to estimate the area of any shape on a plane grid.** | **26, 34** |  | **2** |  |
| **SPI 3.5** | **Write and/or solve inequalities, and compound inequalities including those containing absolute value.** | **14, 24, 27, 39** |  | **4** |  |
| **SPI 3.8** | **Determine the equation of a line and/or graph a linear equation.** | **19, 30, 41** |  | **3** |  |
| **SPI 1.6** | **Determine and interpret slope in multiple contexts including rate of change in real-world problems.** | **6, 31** |  | **2** |  |
| **SPI 3.9** | **Solve systems of linear equation/inequalities in two variables.** | **11, 33** |  | **2** |  |
| **SPI 3.7** | **Determine domain and range of a relation, determine whether a relation is a function and/or evaluate a function at a value.** | **15, 28, 32, 40** |  | **4** |  |
| **SPI 3.6** | **Interpret various relations in multiple representations.** | **29, 42, 43** |  | **3** |  |
| **SPI 5.1** | **Interpret displays of data to answer questions about the data set(s) (OUTLIERS)** | **17, 23** |  | **2** |  |
| **SPI 5.3** | **Using a scatter-plot, determine if a linear relationship exists and describe the association between variables.** | **38** |  | **1** |  |
| **SPI 2.1** | **Operate (add, subtract, multiply, divide, simplify, powers) with radicals and radical expressions including radicands involving rational numbers and algebraic expressions.** | **5, 16, 18, 36** |  | **4** |  |
| ***TOTAL:*** | | |  | **43** |  |

1) Which shows the numbers ordered from greatest to least?

A) , , 1.75,

B) , , 1.75,

C) , 1.75, ,

D) , 1.75, ,

2) Which set includes an irrational number?

A) -4.3542

B) 6.567 0

C) 3.14 - 2

D) -5.3 1.25252525….

3) What is the value of the expression when a = -5 and b = -

ab – 2b2

A) -1.75

B) 1.75

C) 0.75

D) 4.5

4) *Simplify:* ******

A) 8x – y

B) 8x – 7y

C) 13x + 25y

D) 13x + 17y

5) *Reduce:*

A)

B)

C)

D)

6) Jessica is selling cupcakes to raise money for her senior trip. Her total earnings, y, are represented with the equation y = 4x + 10, based on selling x cookies. What does the slope of this equation represent?

A) The number of cupcakes Jessica sells

B) The number of cupcakes Jessica needs to sell

C) The amount of money Jessica sells each cupcake for

D) The total amount of money Jessica makes

7) *Solve:* 20 = 5 + b

A) b = -25

B) b = 25

C) b = -15

D) b = 15

8) David wants to buy a new bicycle that cost $295 before a 40% discount. He

finds the cost after the discount, in dollars, by evaluating 295 – 295(0.40). His

brother Michael finds the same cost by evaluating 295(1 – 0.40). What

property can be used to justify that these two expressions represent the same

cost after the discount?

A) Associative Property of Multiplication

B) Commutative Property of Addition

C) Distributive Property of Multiplication

D) Identity Property of Addition

9) Ms. Todd is trying to figure out Ms. Allen’s age. Ms. Allen wants to test Ms.

Todd’s skills as a math teacher. Ms. Allen tells her that her age is twice Walt’s

age plus 4 more years. Which equation represents *A*, Ms. Allen’s age in terms

of *W*, Walt’s age.

A) A = W – 2 + 4

B) A = 2W

C) A = 2W + 4

D) A = f + 4

10) What is the value of the expression when x = 4 and y = -2?

2

+ xy3

A) -28

B) -24

C) -20

D) -16

11) *Solve:* 2x + 3y = -3

7x + 3y = 12

A) (3, -3)

B) (1.8, 0.2)

C) (-1.8, -0.2 )

D) (-3, 3)

12) *Solve:*  -3.5(1 – 2.4a) = 19.8

A) a = -1.9

B) a = 2.8

C) a = -2.8

D) a = 1.9

13) Which is correctly ordered from least to greatest?

A) - 2.5, - 4.065, - , - 4.1

B) - 4.1, - 4.065, - , - 2.5

C) - 2.5, - , - 4.065, - 4.1

D) - 4.065, - 4.1, - , - 2.5

14) What is the solution for the following inequality?

|-4x – 2| > 20

A) x > -5 or x <

B) x < -5 or x >

C) -5 > x >

D) -5 < x <

15) If the domain of f(x) =  is {-1, 0, 4}, what is the range?

A) {2, 3, 12}

B) {-2, 0, 28}

C) {2, 0, 12}

D) {-2, 3, 28}

16) 5 – 6

A) -1

B) -1

C) -1

D) -1

17) Garric collected data on how many times he turned in homework every

week. The graph below shows his results. Which of the following times

turning in homework could be considered an outlier?



Times Turning

in Homework

Weeks

A) 2

B) 3

C) 4

D) 5

18) What is the product of  and ?

A) 

B) 

C) 

D) 

19) Write equation best represents the line shown?



A) y = –1.25x – 2

B) y = –1.25x + 3

C) y = –0.8x + 3

D) y = –0.8x – 2

*Use the following information for questions 20 and 21:*

**Step 1:** 2x + 10 + 3x = 40

**Step 2:** 2x +3x + 10 = 40

**Step 3:** 5x + 10 + 0 = 40

**Step 4:** 5x + 10 = 40

**Step 5:** 5x = 30

**Step 6:** x = 6

20) Which property justifies moving from Step 1 to Step 2:

A) Commutative Property

B) Associative Property

C) Distributive Property

D) Identity Property

21) Which property justifies moving from Step 3 to Step 4:

A) Commutative Property

B) Associative Property

C) Distributive Property

D) Identity Property

22) *Simplify:* -5g2 – 3gh + g+ g(3 – h)

A) -4g2 – 4gh + 3g

B) -4g2 – 2gh + 3g

C) -5g2 – 4gh + 4g

D) -5g2 – 2gh + 4g

23) Jerome collected data on his daily weight-training workouts. The graph

below displays his results. What number of pounds bench-pressed could be

considered an outlier?



Pounds

Bench-Pressed

150

100

50

Days

A) 125

B) 100

C) 75

D) 50

24) Which statement represents the solution to this compound inequality?

*Solve:* 7x – 11 < 10 < 3x + 28

A) x < 3 or x < 6

B) –6 < x < 3

C) x > 6 and x < 3

D) –3 < x < 6

25) What are the solutions to the equation below?

|-10 – 4k| + 2 = 16

A) {6, -1}

B) {-6, 1}

C) {6, -2}

D) {-6, 2}

26) Estimate the area of the figure below:

A) 10

B) 13

C) 17

D) 21

27) Which number is a solution to 12x – 7 > 7x + 13 or 4x + 5 > 7x + 35?

A) –12

B) –10

C) –4

D) 4

28) Which function best represents the data shown in the table?

Cars and Wrecks

|  |  |
| --- | --- |
| **Thousands of Cars, x** | **Total wrecks, f(x)** |
| 1 | 7 |
| 2 | 11 |
| 3 | 15 |
| 4 | 19 |
| 5 | 23 |

A) f(x) = 4x

B) f(x) = 4x + 3

C) f(x) = 7x

D) f(x) = 7x + 3

29) Which of the following represents the function below:

A) y = x2

B)

|  |  |
| --- | --- |
| x | Y |
| -3 | -9 |
| -2 | -4 |
| -1 | -1 |
| 0 | 0 |
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |

C)

-3

-2

-1 -9

0 0

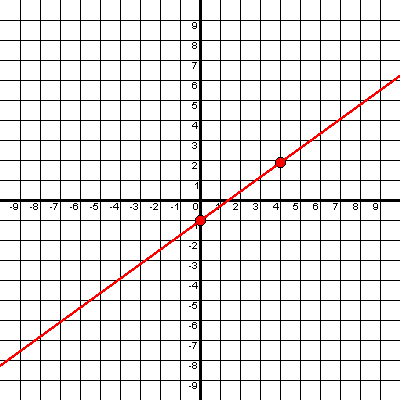
1 -4

2 -1

3

D) {(-3, 9), (-2, 4), (-1, 1), (0,0), (1, -1), (2, -4), (3, -9)}

30) Which equation best represents the graph of the line?



A) y = - x – 1

B) y = - x – 1

C) y = x – 1

D) y = x – 1

31) Brandon works in a shoe store. His daily earnings, y, are represented by the

equation y = 20x + 75 based on selling x pairs of shoes. What is represented

by the slope in this equation?

A) The total pairs of shoes Brandon sells each day

B) The total amount of money Brandon earns each day

C) The amount of money Brandon earns for each pair of shoes he sells

D) The amount of money Brandon earns each day, even if he sells no shoes

32) Which graph represents a relation that is not a function?

A B



C D



33) *Solve:*  x – 3y = 9

7x – 3y = -9

A) (3, -4)

B) (0, 3)

C) (-3, 4)

D) (-3, -4)

34) Estimate the area of the figure:

A) 11

B) 17

C) 23

D) 26

35) Henry earns *x* dollars per month at his job. His salary is made up of a base

salary of $750 plus 7% of all sales, *s*, he makes during the month. His

commission increases to 9% after an excellent performance review. Which

equation represents his new salary?

A) x + .07 = 750s

B) x = .09 + 750s

C) 750 + .09s = x

D) 750 + .07s = x

36) 10 + 2

A) 12

B) 16

C) 12

D) 20

37) Katie rented a moving truck. The total rental cost included a one-time fee of $40.00 and $0.75 for each mile driven. Which equation represents *t,* the total cost in dollars of renting a truck that was driven *n* miles?

A) t = 40 + 0.75n

B) t = 40 +

C) t = 0.75 + 40n

D) t = 0.75 +

38) *Which of the following sets of data has a positive linear relationship?*

**

A) B)



C) D)

39) What is the solution for the following inequality?

|6y – 9| – 2 < 25

A) -3 > y > 6

B) -3 < y < 6

C) y > -3 or y < 6

D) y < -3 or y > 6

40) Which of the following is not a representation of a function:

A) B)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 5 | 6 | 9 | -3 | 2 | 1 |  | X | 6 | -4 | 3 | -3 | 2 | 1 |
| Y | -4 | 6 | 7 | 10 | -4 | 3 |  | Y | -2 | 1 | 7 | 9 | 10 | 1 |

C) D)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 1 | -2 | -3 | 7 | 4 | -2 |  | X | -1 | -2 | -3 | -4 | -5 | -6 |
| Y | 4 | 7 | 9 | -1 | 3 | 8 |  | Y | -2 | 4 | -6 | 5 | -1 | 3 |

41) Which of the following represents the graph of 12x – 4y = 12



A) B)



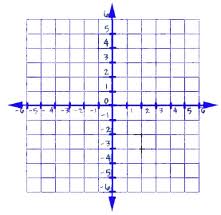
C) D)

42) Which of the following tables was created using the function f(x) = -2x – 7

A) B) C) D)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | f(x) |  | x | f(x) |  | x | f(x) |  | x | f(x) |
| 1 | -9 |  | 3 | -20 |  | 2 | -11 |  | 5 | -17 |
| 2 | 17 |  | -1 | -10 |  | -3 | 22 |  | 0 | -7 |
| -1 | 25 |  | -2 | 0 |  | -4 | 29 |  | -5 | 3 |
| -2 | 32 |  | -5 | 10 |  | -6 | 43 |  | -10 | 13 |

43) Which of the following does *not* represent the function below:



A)

B)

|  |  |
| --- | --- |
| x | Y |
| -3 | -5 |
| -1 | -3 |
| 1 | -1 |
| 3 | 1 |
| 5 | 3 |

C)

-3 -5

-1 -3

1 -1

3 1

5 3

D) {(-3, -5), (-2, 1), (0, -1), (2, 1), (3, 3)}